

# Quality of Life at Work and Working Conditions in Sterilization Assistant

Diemen Delgado<sup>1,\*</sup>, María de los Ángeles Aguilera<sup>2</sup>, Fabián Delgado<sup>3</sup>, Irma Cano<sup>4</sup>, María de Lourdes Preciado<sup>2</sup>, Oscar Ramírez<sup>4</sup>

<sup>1</sup>Department of Occupational Health, Clinica Rio Blanco, Los Andes, Chile

<sup>2</sup>Department of Public Health, University of Guadalajara, Guadalajara, México

<sup>3</sup>Workers Clinic, Manta, Ecuador

<sup>4</sup>Graduate School, Scientific University of the South, Lima, Peru

\*Corresponding author: diemen.delgado@clinicarioblanco.cl

Received August 11, 2013; Revised March 12, 2014; Accepted June 11, 2014

**Abstract** Assessing all the factors relating to working conditions that may impact on health and quality of life at work for Auxiliary sterilization. We performed a cross-sectional analytical study, we applied the CVT-GOHISALO instrument, which measures quality of life at work and the overall evaluation method LEST ergonomic working conditions for the analysis of the data was used the statistical program SPSS 18 software and online work ergonomics of the Polytechnic University of Valencia. In dimension institutional support for work, sterilization assistants, displayed no opportunities for advancement in position or role in the security dimension at work, feel injustice in promotion opportunities within the institution, in the integration dimension to the job, are motivated to overcome challenges and very willing to be leaders in job satisfaction dimension, are usually committed to the mission of the institution, in the dimension of being achieved through work, they risk physical health and mental health, personal development dimension, are optimistic and friendly service, in free time management dimension, fully comply with your schedule and the tasks without compromising their personal and social commitments. The working conditions in terms of posture, handling surgical equipment and tools presents imminent risk of fatigue. The sterilization assistants show a series of subjective perceptions that reflect the reality of their work environment, which should lead to the leadership in decision making towards improving work processes and thus reduce the risk factors that are evident in this study, which may cause physical and mental illness if not corrected early.

**Keywords:** quality of life at work, working condition, health workers

**Cite This Article:** Diemen Delgado, María de los Ángeles Aguilera, Fabián Delgado, Irma Cano, María de Lourdes Preciado, and Oscar Ramírez, "Quality of Life at Work and Working Conditions in Sterilization Assistant." *American Journal of Public Health Research*, vol. 2, no. 3 (2014): 108-112. doi: 10.12691/ajphr-2-3-8.

## 1. Introduction

The sterilization centers as service providers are very important elements in health to be directly related to the surgical [1]. The main mission of a sterilization center of a health service is to provide all the material units or equipment in a fit of sterility. This process begins when the item is removed, followed by cleaning, inspection, packaging, labeling and sterilization, to ensure performance and safety of the same [2].

However there may be risks associated with its business, independent of the type of sterilization that is performed, such as cargo handling or repetitive movements [3], different processes to achieve sterility involve a number of risks inherent in the very nature of the process, from burns associated with the highest temperatures to the carcinogenicity and mutagenicity of some chemical sterilants [4,5,6,7].

Therefore, given the importance and complexity of this practice and the paucity of literature on the subject, this

study was conducted aimed at evaluating the set of factors related to working conditions that may impact on health and the quality of life in the work of auxiliary sterilization, but even if it is emphasized that the quality of life at work [8,9,10,11], is a philosophy that ennobles the worker and personal development.

## 2. Method

We performed a cross-sectional and analytical study to identify the quality of life at work and working conditions of sterilization clinic assistants White River city of Los Andes, Chile, during the first half of 2013. We applied the CVT-GOHISALO, which consists of 74 items and measures the quality of work life in seven dimensions: institutional support for work, job security, workplace integration, job satisfaction, wellbeing through work, personal development and leisure management [12].

The instrument set as a multiple interaction pattern between the individual and the environment in which you can combine three levels: the individual level, the

individual level with employment and the individual level with major groups with which it interacts.

In the foreground, we can group all the aspects related to private life or exterior worker, although not "belong" to their field of work, influences significantly, since it is not stagnant behaviors. The dimensions that identify this plane are the personal development of the employee and management time, with issues ranging from the achievements, expectations of improved living standards, personal recognition, coexistence and care with family and others.

The second level has to do with the individual and his immediate connection with the work, and the relationship of the worker and the other members of the work, being a central factor of personal and organizational health. The dimensions which together retake these conditions, job satisfaction and well-being achieved through the work, both dimensions refer to the area where most business interactions, where the person gives time occurs, your skills and skills, abilities and attitude, in a microclimate and time feeds of what they bring other, forming a system of expectations that is where culture and organizational climate resumes.

And in third place, the dimensions that address this issue are more related to the proper object of work that makes up a particularly important environment in institutional support for the job, a job security and integration into the workplace, dimensions that are themselves identified by the instrument.

The score obtained on application to health professionals represented in percentile values or values T McCall. That is, the 50th percentile represent the average gross point location and the value 10 is set as the deviation. Thus, scores below the value T 40 would be vulnerable to the risk of imbalance in the quality of life at work.

To assess the working condition, we used the method of comprehensive evaluation LEST ergonomic working conditions belonging to the Laboratory of Economics and Sociology of Work in France [13], this method evaluates: the physical, physical, mental workload, psychosocial and work time.

To determine the diagnostic method considers 14 variables grouped into 5 areas mentioned above. Assessment based on the scores obtained by each of the 14 variables considered, with the following scoring system:

- 0, 1.2 satisfactory situation
- 3 4.5 Some improvements could enhance worker comfort
- 6, 7 Annoyances stockings. Risk of fatigue
- 8.9 strong discomfort. Fatigue
- 10 Health hazard

Application of the method begins with observation of the activity developed by the worker in which necessary data must be collected for evaluation. In general, for making objective data using appropriate equipment as was necessary: A psychrometer for measuring temperatures, a light meter to measure light intensity, a sound level meter to measure sound intensity levels, an anemometer to evaluate the speed of air at and instruments for measuring distances and times as tape measures and stopwatches.

For data analysis, we used SPSS 18 software and online work ergonomics of the Polytechnic University of Valencia: Ergonautas.com

Each participant was informed of the study, the specific objective of it. There was no intervention or intentional modification in individuals [14]. The author undertook to manage the information under standards established by the International Code of Medical Ethics [14].

### 3. Results

The Clinic sterilization service Rio Blanco, has a reception area of material used, equipment wash area, preparation area material autoclaves area, team area ethylene oxide, high-level disinfection, wine clothing and material delivery area, these tasks are performed by two sterilization assist them who receive surgical medical equipment from all clinical, washed, dried, sorted, prepared, sterilized and record in a book all incoming material and graduates of the service, these tasks are supervised by a nurse coordinator. Below are the results of the study.

Regarding the quality of life at work, qualified according to CTV-GOHISALO instrument. See Table 2. The following interpretations were obtained in the dimension institutional support for work, sterilization assistants as people in activities or tasks with clear and consistent motivation, however not visualize opportunities for advancement on the job or role. In the security dimension at work, consider their work activities as a means to develop both personally and socially, however feel injustice in promotion opportunities within the institution.

In dimension, workplace integration, sterilization assistants usually people helper, easy to work in teams with high complexity, are motivated to overcome challenges and very willing to be leaders. In dimension, job satisfaction, are usually committed to the mission of the institution. These are people who show the positive aspects of work, assessed themselves as having pride in belonging to the institution. The awards received are scarce or nonexistent.

In dimension, welfare achieved through work, sterilization assistants perceived risk in the physical or emotional, are dissatisfied with the compensation gained for his work and therefore, responsible work environment for its precarious. In dimension, personal development, has good mood, is optimistic and friendly service. They transmit their enthusiasm to others, but may consider the work has diminished fiscal capacity and emotional. In the free time management dimension, plan and distribute their work activities with recreational and rest, fully comply with your schedule and the tasks without compromising their personal and social commitments.

As for working conditions using the LEST method, the following results were obtained. See Table 1. Regarding the physical load can be divided into two states, the first: static loading, depending on the most common approach taken by workers, who was standing with inclination of trunk (30 minutes / hour) followed to stand with front extension arms (15 minutes / hour) and the second: the dynamic load, which depends on the effort made in the workplace, this turned out to be brief but repeated (44 times / hour), is manipulation of surgical equipment and tools related to the actual process of sterilization. The weight of the load that causes the effort does not exceed 2

kg, the path for feeding the machine with material to be sterilized is more than 3 meters, with a carrier frequency less than 10/hour, the weight of transport is less than 12 Kg. The working conditions in terms of fatigue risk

posture presents, tools that manipulation of surgical equipment and fatigue tools already installed, as the efforts made in the workplace are weak procurement and discomfort.

**Table 1. Working conditions using the method LEST**

Load Physics	*P	Environment Physics	*P	Load Mental	*P	Aspects	*P	Working Time	*P
Load Static	7	Environment Thermal	1	Time Pressure	5	Initiative	4,17	Amount of Time	
Load Dynamic	8	Noise	0	Attention	7	Communications	3	Organization of Time	9
		Lighting	3	Complexity	0	Relationship Command	5		
		Vibes	0			Status Social	0		

\* Points  
Source: Direct.

**Table 2. CVT-GOHISALO applied Sterilization Assistant**

Level of satisfaction	Score	T	SIT	ST	IPT	ST	BAT	DP	ATL
High Satisfaction	78-90								
Average satisfaction	40-60	42,4	43,5	42,8	43,5	50,2	49,1	48,3	
Low satisfaction	20-30								

Source: Direct

Physical environment, the thermal environment is told during the daily 8-hour shift, with an average temperature of 25 degrees Celsius and humidity of 40%. The workers are always subjected to the same constant noise level, this does not exceed 65 db, impulsive noises are absent. The level of care required by the task is very high, due to an increased need for accuracy of the process. It works with permanent artificial light, no glare, the light level in the workplace is 1592 lux, the sterilization room of 342 lux, the contrast in the workplace is medium, the level of task required perception is extremely thin. The vibration level during the 8 hours of work is less than two hours and are little annoying. The working conditions in terms of thermal environment, noise and vibration is satisfactory. Despite the bright atmosphere could would improve and bring more convenience to the employee.

Regarding mental workload, level of care work is repetitive, chain, without pausing, requires monitoring if there are delays in the task they must recover for the work, the time to reach the normal rhythm of work is less than or equal to ½ hour, the mode of remuneration is a fixed monthly salary. The level of care required by the task is very large, must be maintained for more than 40 minutes / hour, due to a greater need for accuracy of the process and exchange of words during the cleaning, inspection, packaging, labeling and sterilization. Time is more than 5 minutes / hour in which the worker can look away from the process given the level of care required, the lack of attention could trigger serious accidents nevertheless occur infrequently. The complexity is based on the average duration of the cleaning, inspection, packaging, labeling is more than 16 seconds, the average duration of each cycle is less than about 5 minutes and 7 minutes. The working condition as to the pressure times the accuracy involved manipulation of surgical equipment and tools could provide more comfort and would improve the worker, however the level of attention already generating risk of fatigue.

Regarding the psychosocial aspects in terms of initiative we can see that the worker can not change the order of the process performing, this depends on the rate of the chain organized under strict quality standards:

Controls the parts, made possible tweaks. The worker fully and positively influences the quality of the product, ie the total impossibility of error, if an incident should intervene the worker. The machines and equipment busy during the sterilization process are regulated by the worker himself. Regarding communication with other workers, the number of people visible by working within 6 meters is 2 persons (partner and supervisor), the employee can not be absent from their jobs, there is no restriction on the right to speak, there is the technical possibility of speaking in the workplace, exchanges of words, as to exchange with other jobs is rare. There expression organized working with several very active delegates. As for the relationship with the remote, there are slogans at the beginning of the day and at the request of the employee, the command is not near or frequently present. The position of the worker is independent. Regarding social status, length of worker learning to the workplace is of 1-3 months the technical training required is minimal professional sterilization. The working conditions in terms of initiative, communication and relationship have weak control discomfort, some improvements could enhance worker comfort.

The work schedule is 8 hours per day ie 45 hours per week, thus there is no possibility of overtime, when delays are impossible income, in relation to the end of the day when there is only one can stop work at the scheduled time, regarding breaks at work is impossible to set duration and time. With regard to time off during office hours no possibility collation according to institutional rules of procedure. The working condition in terms of the amount of time to comply with the sterilization process itself could would improve and provide more comfort to the worker, notwithstanding the absence of pauses and systematic process compliance regarding the organization of time triggered fatigue.

#### 4. Discussion

This study is the first attempt to identify the quality of life at work and working conditions in the auxiliary sterilization. One of the limitations in the development of

our study was the lack of information related to the investigation of the quality of life at work and working conditions of the sterilization assistants. As for the quality of life at work, sterilization assistants show a series of subjective perceptions that reflect the reality of their work environment [9].

Regarding the working conditions in terms of static load this was due to the inclination of the trunk when cleaning surgical equipment, otherwise occurred in another study to evaluate jobs in the area covers a metallurgical company [15], finding that the static load was influenced by improper posture of the arms above the shoulders at the time of packaging bags.

In our study the effort made in the workplace, specifically Fatigue at risk by repeated movement at the time of cleaning of surgical supplies, in another study, on a simple model for the integrated risk assessment of musculoskeletal injuries [3], was found that at rest, any body position requires commitment and energy cardiovascular, as the hours pass working.

In our study the noise level exceeds 65 dB and was rated satisfactory situation, in another study to evaluate jobs in the fishing industry of Ecuador [16], found that the factor that contribute to worker fatigue is caused by fluctuating noise around 82 dB, which despite not exceed the recommended limit of 85 dB for 8 hours, resulting in discomfort.

In our study the level of illumination and contrast inconvenience caused feeble, in another study to evaluate the factors that affect workers asthenopia visual inspection in the electronic industry [17], found that the existing lighting in the workplace, causes eyestrain, probably because it has a good contrast between object and surface visual inspection tasks.

In our study presents sterilization auxiliary likely alteration in the area of mental health, another study to conduct a literature review on the grievances overwork and mental health workers [18], was concluded that the work excessively grievances contributes significantly to mental and physical health.

Another author, conducted an analysis of the risk at work and occupational health [19], concluded that the main causes of accidents were due to distractions, carelessness, forgetfulness or inattention (45%), work very fast (19.4%), and fatigue or fatigue (17.8%). It is noteworthy that in our study, accidents rarely occur, although their processes are systematic, precision and mental workload showed fatigue risk.

In our study, the initiative presented discomfort weak, probably due to the acquisition of a pattern related to quality standards in the process of sterilization, in another study to evaluate jobs in the area covers a metallurgical company [15], be noted that the initiative in the assistant operator presented a major nuisance and in the case of mechanical operator discomfort only weak, this situation was mainly due to differences in positions and activities performed by the operators.

Another author conducted an ethnographic analysis of the complexity and opacity of the ancillary tasks of sterilization [20], finding degrees of general invisibility of the whole service, in our study this perception is similar, finding that the exchange with other jobs is rare and having degrees of invisibility.

In a case study concerning the modes of interaction in work processes regarding the relationship of command [21], was observed that the coordinator has a dual mode of presence and performance, as a single agent and coordinator, is part of the community of practice as it helps, collaborates and replace other workers in their tasks throughout the sterilization process. Otherwise occurs in our study where the coordinator is not about the processes and does not participate in them.

In our study to evaluate the working time, this presented a risk of fatigue, although the process is determined by a reasonable time, there is a perception that workers should increase the number of assistants, it is important to note that this service does not exist overtime possibility of fatigue, and this probably work related repetitive short but equal results are presented in another study to evaluate the work time regarding fatigue, however, in this study the fatigue relate to increased demand for overtime and on many occasions there was no chance of rejection, and they were subject to the end of the planned production [16].

Finally, in light of the results, it is suggested to design an intervention program to modify working conditions, eliminating the factors that may present physical and mental damage to medium term, and thereby improve the quality of life at work, contrasting this study of the dimensions evaluated by CVT-GOHISALO instrument.

## Acknowledgement

My mother Betty Aracely Garcia Pinoargote to understand the space of being and time, and in the distance, to feel close to my thinking and thus to deepen the dimension of qualitative research. My father Eustorgio Bernaldo Delgado Palma, that this legacy of inspiration, start permanent imprint in the history of knowledge, health science at work.

## Statement of Interest

There are no conflicts of interest to report.

## List of Abbreviations

CVT-GOHISALO: Instrument for assessing quality of life at work

LEST: Laboratoire de Economie et Sociologie du Travail

KG: Kilograms

DB: Decibels

LUX: Illumination level

P: Points.

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